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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/592,310	06/13/2000	Upendra V. Chaudhari	YOR-2000-0167US1	7377
35195	7590	03/26/2004	EXAMINER	
FERENCE & ASSOCIATES 400 BROAD STREET PITTSBURGH, PA 15143			LAFORGIA, CHRISTIAN A	
			ART UNIT	PAPER NUMBER
			2131	9

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/592,310

Applicant(s)

CHAUDHARI ET AL.

Examiner

Christian La Forgia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 through 19 are presented for examination.

Drawings

2. The drawings were received on 17 September 2001. These drawings are accepted by the Examiner.

Specification

3. The attempt to incorporate subject matter into this application by reference to co-pending patent applications is improper because the Applicant fails to cite either the Attorney docket number or the co-pending application(s) serial number.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 9-11, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,510,415 to Talmor et al., hereinafter Talmor.

6. As per claim 1, Talmor teaches a method of providing authentication, said method comprising the steps of:

receiving an identity claim (Figures 1 [blocks 14, 15], 2 [block 20], 3 [block 40], 4 [blocks 50, 52, 54]; column 7, lines 26-38; column 7, line 66 to column 8, line 6; column 9, lines 7-24; claims 1, 18, 35, & 36);

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determining a target discriminant based on the identity claim and on at least one target model relating to a target individual (Figures 2 [blocks 21, 22], 3 [block 41, 42], 5; column 9, lines 7-24; column 9, lines 33-43);

determining a background discriminant based on the identity claim and on at least one background model relating to at least one background individual (Figures 2 [block 2], 3 [block 44], 5; column 9, lines 7-24; column 9, lines 33-43);

determining a score based on the target discriminant and the background discriminant (Figures 2 [block 28], 3 [blocks 43], 5; column 4, lines 38-51; column 8, lines 43-54; column 9, lines 7-24; column 9, lines 33-43); and

accepting or rejecting the identity claim based on the determined score (Figures 2 [blocks 30, 32], 3 [block 46, 48]; column 8, lines 56-63; column 9, lines 21-25).

7. Regarding claims 2 and 11, Talmor teaches wherein said step of determining the background discriminant comprises providing a background profile and further determining the background discriminant based on the background profile (Figure 2 [blocks 24, 28], 3 [block 43], 5, 6, 7; column 9, lines 7-24; column 10, lines 11-29; column 13, lines 3-28).

8. As per claims 9 and 19, Talmor teaches a method of providing speech-based authentication, said method comprising the steps of:

receiving an identity claim (Figures 1 [blocks 14, 15], 2 [block 20], 3 [block 40], 4 [blocks 50, 52, 54]; column 7, lines 26-38; column 7, line 66 to column 8, line 6; column 9, lines 7-24; claims 1, 18, 35, & 36),

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determining a target discriminant based on the identity claim and on at least one target voiceprint model relating to a target speaker (Figures 2 [blocks 21, 22], 3 [block 41, 42], 5; column 9, lines 7-24; column 9, lines 33-43);

determining a background discriminant based on the identity claim and on at least one background voiceprint model relating to at least one background speaker (Figures 2 [block 2], 3 [block 44], 5; column 9, lines 7-24; column 9, lines 33-43);

determining a score based on the target discriminant and the background discriminant (Figures 2 [block 28], 3 [blocks 43], 5; column 4, lines 38-51; column 8, lines 43-54; column 9, lines 7-24; column 9, lines 33-43); and

accepting or rejecting the identity claim based on the determined score (Figures 2 [blocks 30, 32], 3 [block 46, 48]; column 8, lines 56-63; column 9, lines 21-25).

9. As per claim 10, Talmor teaches an apparatus for providing authentication, said apparatus comprising:

a receiving arrangement which receives an identity claim (Figures 1 [blocks 14, 15], 2 [block 20], 3 [block 40], 4 [blocks 50, 52, 54]; column 7, lines 26-38; column 7, line 66 to column 8, line 6; column 9, lines 7-24; claims 1, 18, 35, & 36);

a target discriminant generator which determines a target discriminant based on the identity claim and on at least one target model relating to a target individual (Figures 2 [blocks 21, 22], 3 [block 41, 42], 5; column 9, lines 7-24; column 9, lines 33-43);

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a background discriminant generator which determines a background discriminant based on the identity claim and on at least one background model relating to at least one background individual (Figures 2 [block 2], 3 [block 44], 5; column 9, lines 7-24; column 9, lines 33-43); and

a decision arrangement which determines a score based on the target discriminant and the background discriminant (Figures 2 [block 28], 3 [blocks 43], 5; column 4, lines 38-51; column 8, lines 43-54; column 9, lines 7-24; column 9, lines 33-43), and

accepts or rejects the identity claim based on the determined score (Figures 2 [blocks 30, 32], 3 [block 46, 48]; column 8, lines 56-63; column 9, lines 21-25).

10. As per claim 18, Talmor teaches an apparatus for providing speech-based authentication, said apparatus comprising:

a receiving arrangement which receives an identity claim (Figures 1 [blocks 14, 15], 2 [block 20], 3 [block 40], 4 [blocks 50, 52, 54]; column 7, lines 26-38; column 7, line 66 to column 8, line 6; column 9, lines 7-24; claims 1, 18, 35, & 36);

a target discriminant generator which determines a target discriminant based on the identity claim and on at least one target voiceprint model relating to a target speaker (Figures 2 [blocks 21, 22], 3 [block 41, 42], 5; column 9, lines 7-24; column 9, lines 33-43);

a background discriminant generator which determines a background discriminant based on the identity claim and on at least one background voiceprint model relating to at least one background speaker (Figures 2 [block 2], 3 [block 44], 5; column 9, lines 7-24; column 9, lines 33-43); and

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a decision arrangement which determines a score based on the target discriminant and the background discriminant (Figures 2 [block 28], 3 [blocks 43], 5; column 4, lines 38-51; column 8, lines 43-54; column 9, lines 7-24; column 9, lines 33-43), and

accepts or rejects the identity claim based on the determined score (Figures 2 [blocks 30, 32], 3 [block 46, 48]; column 8, lines 56-63; column 9, lines 21-25).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3-8 and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Talmor.

13. Regarding claims 3 and 12, Talmor teaches wherein said step of providing a background profile comprises determining a weight vector (column 10, lines 11-29).

14. Talmor does not teach determining a permutation matrix; determining the background profile based on the permutation matrix and the weight vector. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a method for determining the background profile, since Talmor discloses a method for distinguishing the voice print from the background noise and it is common knowledge that background noise is never exactly the same twice.

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15. With regards to claims 4 and 13, Talmor teaches wherein said step of determining the weight vector comprises selecting a weight graph that relates the individual background discriminant functions to at least one characteristic associated with the at least one target voiceprint model (Figure 4 [blocks 56, 58]; column 10, lines 11-29).

16. With regards to claims 5 and 14, Talmor teaches wherein said step of providing the background profile comprises providing the background profile automatically (Figure 4 [blocks 56, 58]; column 10, lines 11-29).

17. Concerning claims 6 and 15, Talmor does not teach wherein said step of determining the permutation matrix comprises providing the permutation matrix as the identity matrix. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the permutation matrix as the identity matrix, since it is the background profile that is trying to be determined it would only make sense to make the permutation matrix the identity matrix to compare against all other background profiles.

18. Regarding claim 7, Talmor teaches ascertaining individual discriminants in correspondence with each of the background population models (column 10, lines 11-29).

19. Talmor does not teach providing a plurality of background population models; and said step of determining the background discriminant comprising determining the background discriminant as a function of the individual discriminants. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a method for determining

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the background profile, since Talmor discloses a method for distinguishing the voice print from the background noise and it is common knowledge that background noise is never exactly the same twice.

20. With regards to claims 8 and 17, Talmor teaches wherein said step of determining the background discriminant comprises determining the background discriminant as a function, of the individual discriminants corresponding to each of the background population models, that is dependent on at least one characteristic relating to the target individual (Figure 4 [blocks 56, 58]; column 10, lines 11-29).

21. Regarding claim 16, Talmor teaches wherein said background discriminant generator is adapted to ascertain individual discriminants in correspondence with each of the background population models (column 10, lines 11-29).

22. Talmor does not teach the at least one background population voiceprint model comprises a plurality of background population models; and determine the background discriminant as a function of the individual discriminants. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a method for determining the background profile, since Talmor discloses a method for distinguishing the voice print from the background noise and it is common knowledge that background noise is never exactly the same twice.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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24. The following patents are cited to further show the state of the art with respect to voice print authentication systems, such as:

United States Patent No. 6,655,585 to Shinn, which is cited to show a system of biometric smart card user authentication.

United States Patent No. 6,185,316 to Buffam, which is cited to show a self-authentication apparatus.

United States Patent No. 6,697,947 to Matyas, Jr. et al., which is cited to show biometric based multi-party authentication.

United States Patent No. 6,493,669 to Curry et al., which is cited to show speech recognition driven system with selectable speech models.

United States Patent No. 5,719,950 to Osten et al., which is cited to show biometric, personal authentication system.

United States Patent No. 6,154,579 to Goldberg, which is cited to show confusion matrix based method for correcting misrecognized words.

United States Patent No. 6,266,640 to Fromm, which is cited to show data networks with voice verification means.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian La Forgia whose telephone number is (703) 305-7704. The examiner can normally be reached on Monday thru Thursday 7-5.


26. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (703) 305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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27. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christian LaForgia
Patent Examiner
Art Unit 2131

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4/11/2136